IN THE UNITED STATES DISTRICT COURT

FOR THE NORTHERN DISTRICT OF CALIFORNIA

TECHNOLOGY PROPERTIES LIMITED LLC and MCM PORTFOLIO LLC,

Plaintiffs,

v.

CANON, INC. et al.,

Defendants.

_____/

No. C 14-3640 CW

ORDER CONSTRUING DISPUTED CLAIM TERMS OF U.S. PATENT NOS. 7,719,847; 7,522,424; AND 7,295,443

(Docket No. 282)

TECHNOLOGY PROPERTIES LIMITED LLC and MCM PORTFOLIO LLC,

Plaintiffs,

v.

HEWLETT-PACKARD COMPANY,

Defendant.

_____/

No. C 14-3643 CW

(Docket No. 72)

TECHNOLOGY PROPERTIES LIMITED LLC and MCM PORTFOLIO LLC,

Plaintiffs,

v.

NEWEGG INC. et al.,

Defendants.

_____/

No. C 14-3645 CW

(Docket No. 59)

TECHNOLOGY PROPERTIES LIMITED LLC and MCM PORTFOLIO LLC,

Plaintiffs,

v.

SEIKO EPSON CORPORATION, et al.,

Defendants.

_____/

No. C 14-3646 CW

(Docket No. 69)

In these patent infringement cases, Plaintiffs Technology Properties Limited, LLC, and MCM Portfolio, LLC, sued Defendants Canon Inc., Canon U.S.A. Inc., Hewlett-Packard Company, Newegg Inc., Rosewill Inc., Seiko Epson Corporation, and Epson America, Inc. The cases were initially filed in the United States District Court for the Eastern District of Texas, and were transferred to this District upon Defendants' consolidated motion to transfer venue. Docket No. 163.[1] In their amended complaints, Plaintiffs assert that several of Defendants' products infringe Plaintiffs' patents. The parties seek construction of seven disputed terms used in the claims of the following patents-in-suit: U.S. Patent Numbers 7,719,847 (the '847 patent); 7,522,424 (the '424 patent) and 7,285,443 (the '443 patent). On June 18, 2015, the parties appeared for a claim construction hearing. Having considered the

[1] Docket Numbers correspond to the docket for case number 14-3640.

claims and specifications, along with the papers and arguments of counsel, the Court construes the disputed terms as follows.

LEGAL STANDARD

Claim construction is a question of law to be determined by the Court. Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc), aff'd, 517 U.S. 370 (1996). "To construe a claim term, the trial court must determine the meaning of any disputed words from the perspective of one of ordinary skill in the pertinent art at the time of filing." Chamberlain Group, Inc. v. Lear Corp., 516 F.3d 1331, 1335 (Fed. Cir. 2008). This requires a careful review of the intrinsic record, which includes the claim terms, written description, and prosecution history of the patent. Id.; Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (internal citations omitted). While claim terms "are generally given their ordinary and customary meaning," the rest of the claim language and the context in which the terms appear "provide substantial guidance as to the meaning of particular claim terms." Phillips, 415 F.3d at 1312-15. Claims "must be read in view of the specification, of which they are a part." Markman, 52 F.3d at 979. Although a patent's prosecution history "lacks the clarity of the specification and thus is less useful for claim construction purposes," it "can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the

claim scope narrower than it would otherwise be." Phillips, 415 F.3d at 1317 (internal quotation marks omitted). The court may also consider extrinsic evidence, including dictionaries, scientific treatises, and testimony from experts and inventors. Such evidence, however, is "less significant than the intrinsic record in determining the legally operative meaning of claim language." Id. (internal quotation marks omitted).

BACKGROUND

The three patents-in-suit were filed in the following order: the '443 patent was first, the '424 patent was second, and the '847 patent was third. The three patents describe devices for reading removable memory cards. There are several different types of memory cards available to consumers, including SmartMedia, CompactFlash, MultiMediaCard (MMC), xD Picture Card and Memory Stick. The variety of formats presented a potential problem for devices that needed to interface with multiple types of memory cards, and the patents-in-suit overcome this problem by enabling production of a memory card reader that can accept and read multiple types of memory cards through a single slot in a single device.

The parties agree that the patent describes the following technology. The memory cards have pads that mate with the device's contact pins. The contact pins connect to interconnection means, which connect to signal lines, which connect to the device's controller. The physical paths between

the controller, signal lines, interconnection means and contact pins are fixed. However, because the device accommodates multiple types of memory cards--with their multiple numbers of pads--the contact pins may have to process different signals in order to communicate with the different types of memory cards. The device's controller "maps" the signal lines to the contact pins. Figure 5 of the patents illustrates the different mapping configurations. For example: if an XD card is inserted, the controller identifies the type of card and then connects the RDY signal line to contact pin 3. However, if either an MMC or SD card is inserted, the controller will connect an MCMD signal line to contact pin 3.

DISCUSSION

1. "to map"

The parties seek construction of the term **"to map"** as it appears in two independent claims of the '443 patent. Part of claim 1 reads:

> a controller chip **to map** at least a subset of the at least one set of contact pins to a set of signal lines or power lines, based on an identified type of a memory media card.

'443 patent at 8:53-55. The term also appears in claim 9 in language that is slightly, though not significantly, different. '443 patent at 10:3-6.

Plaintiffs contend that the verb "to map" means "to logically assign," and in this case, to logically assign signals to pins,

depending on the type of memory card that is inserted into the device. Defendants argue that the term means something more specific. They argue that the mapping terms were added during prosecution of the '443 patent[2], and therefore the file history informs the scope of the claims. Specifically, they argue that the term "mapping" means "to vary the assignment of" because the term was added following a prior art rejection, and if the assignment of signal lines to contact pins does not vary, then the device is not distinguishable from prior art.

The prior art to which Defendants refer is United States Patent Number 6,402,558 (the Hung-Ju reference), which also taught an adapter capable of accommodating multiple types of memory cards. Defendants' Brief, Ex. 1 (Docket No. 300-1). The original application for the '443 patent included the following language for claim 1: "a controller chip to differentiate a pin configuration based on an inserted memory media card." Office Action Summary (Docket No. 300-3) at TPL002547. The examiner rejected this claim as anticipated by Hung-Ju. Office Action Summary at TPL002239-40. Then, the applicant changed the language of claim 1 to the following: "a controller chip to map at least a subset of the at least one set of contact pins to a set of signal lines or power lines, based on an identified type of memory media

[2] Defendants argue, and Plaintiffs do not contest, that statements relating to "mapping" during the prosecution of the '443 patent apply equally to the '424 and '847 patents.

card." Office Action Summary at TPL002547. The applicant explained:

> As shown, Hung-Ju discusses a memory media card adaptor suitable for different types of memory cards by physically "positioning contact pins and entrance slots in various locations". Thus, Hung-Ju suggests using different sets of contact pins for different types of memory cards. By ***physically placing memory cards in different positions in the adaptor***, different contact pins are in contact with the memory cards. Thus, Hung-Ju teaches away from the claim limitation using *a controller chip to* ***"map at least a subset of the at least one set of contact pins to a set of signal lines or power lines***" where one set of pins is mapped to different signals depending on the type of identified memory card, as recited in Applicant's independent claims 1 and 12 [patented claims 1 and 9].

Office Action Summary at TPL002554-55 (emphasis in original). In sum, Hung-Ju taught a device with multiple slots and multiple sets of contact pins for the multiple types memory cards, but the application that became the '443 patent taught a device that did not require multiple slots and multiple contact pins but instead utilized a controller to map the same (or a subset of) contact pins to different signal lines, depending on the type of card inserted.

Defendants offer two separate arguments regarding how Hung-Ju informs the construction of the "mapping" claim. Defendants first argue that the specification of the '443 and '424 patents uses the word "mapping" in an entirely different sense than it is used in the claims. They point to Figure 3, described as showing a device with "a number of sets of contact pins," and explain that these different sets of contact pins exist to connect to different types

of cards. They argue that Figures 4 and 5 describe fixed assignments of signal lines and different sets of contact pins, depending on which type of card is inserted. According to Defendants, this "mapping" is different from the controller chip's task "to map" pins to signal lines because the Figures depict a version of the invention that was rejected due to Hung-Ju, while the use of a controller "to map" pins to signal lines was added after the prior art rejection.

The Court is not persuaded that it must read the "to map" phrases in the claims differently from the "mapping" phrases in the specification. It is well-established that a court looks to the prosecution history as well as the words of the claims themselves, the specification and any relevant extrinsic evidence when construing claims. Phillips v. AWH Corp., 415 F.3d 1303, 1312-12 (Fed. Cir. 2005) (en banc). Prosecution history is particularly informative when it demonstrates that the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582-83 (Fed. Cir. 1996). "In construing terms used in patent claims, it is necessary to consider the specification as a whole, and to read all portions of the written description, if possible, in a manner that renders the patent internally consistent." Budde v. Harley-Davidson, Inc., 250 F.3d 1369, 1379-80 (Fed. Cir. 2001). Defendants have not shown that the variations of the word "map" are used

inconsistently throughout. Rather, as Plaintiffs show, the claims as revised following the prior art rejection are consistent with the description of the mapping function in the specification. Once a memory card is inserted, a controller chip determines what type of card is inserted and then maps the contact pins to signal lines according to the assignments shown in Figures 4 and 5. Indeed, the applicant specifically referred to Figure 4 in his discussion of "mapping" in the context of the Hung-Ju reference. The "mapping" terms are susceptible to a logical, internally-consistent reading, and Defendants' argument that the Court must read the "mapping" phrases as having different meanings in the specification and the claims is without merit.

Defendants next contend that one skilled in the art would understand the term "to map" as used in the patents-in-suit and in the context of the prosecution history detailed above to mean varying the assignment of the signal line based upon which type of memory card is inserted. Defendants further urge the Court to specify that the use of some signal lines in some circumstances but not others, based upon fixed assignments, does not constitute mapping. Defendants argue that after the application was rejected due to Hung-Ju, the applicant added the mapping term, thereby narrowing the claim scope. Defendants show that the adapter in Hung-Ju contained a single slot for SD and MMC cards, and extrapolate that one skilled in the art would understand that the use of the phrase "to map" excludes such an arrangement.

Plaintiffs respond first that Defendants' argument is less one of claim construction than it is of non-infringement. The Court agrees. If the accused devices are like the device in Hung-Ju, with a single port and a shared set of contact pins for both SD and MMC cards, it may be that the accused devices do not infringe the patents-in-suit. However, the fact that the inventor distinguished prior art does not necessarily shed light on the definition of the terms used. First, as Plaintiffs argue, the applicant did not differentiate Hung-Ju on the basis that "mapping" required "varying assignments." The discussion block-quoted above distinguishes Hung-Ju on the basis that Hung-Ju utilizes multiple ports with different physical locations in the device while the patented invention utilizes a controller chip to map signals to lines, depending on the type of memory card inserted. It is not plain from this discussion that "mapping" must mean varying the assignments such that using signal lines in some circumstances but not in others does not constitute mapping. Second, the Court must give claim terms their plain and ordinary meaning to one of skill in the art, with two exceptions: (1) when the inventor acts as a lexicographer and defines a term and (2) when the inventor disavows the full scope of the claim term, either during prosecution or in the specification. Hill-Rom Services, Inc. v. Stryker Corp., 755 F.3d 1367, 1371 (Fed. Cir. 2014) (citations omitted). Defendants argue neither. The Court

thus concludes that it must reject Defendants' proposed construction of "to map."

Plaintiffs propose construing "to map" as "to logically assign." As briefly mentioned in a footnote in their reply brief, and as discussed at the claim construction hearing, Plaintiffs' proposal includes the word "logically" in an effort to define away any necessity for a physical change of connections based upon the identification of a type of media card. This argument anticipates an argument made by Defendants before the ITC, but which Defendants did not include in their response brief. The Court concludes that the plain and ordinary meaning of "to map" as used in the patents does not necessarily speak to whether the assignment must be physical or logical, and making that determination would be beyond the scope of claim construction. Accordingly, the Court construes **"to map"** as meaning **"to assign."**

2. "means for mapping"

The parties seek construction of the term **"means for mapping"** as it appears in four claims of the '424 patent and one claim of the '847 patent.

Claim 1 of the '847 patent describes a **"means for mapping** power, ground or data signals between said signal lines and said contact pins depending upon the identification of the type of memory card inserted into said port; wherein the **means for mapping** comprises a controller." '847 patent at 8:46-50. Claim 26 of the '424 patent claims an "Apparatus according to claim 25 where the

means for mapping comprises a controller." '424 patent at 11:12-13. Claim 29 of the '424 patent claims an "Apparatus according to Claim 28 where said **means for mapping** comprises a controller." '424 patent at 12:12-13. Claims 25 and 28 describe a "**means for mapping** power, ground or data signals between said interconnection pins and said one or more contact pins depending upon the identification of the type of memory card inserted into said port." '424 patent at 11:8-11 and 12:8-11.

Defendants contend that all five of the above-quoted claim terms are means-plus-function claims governed by 35 U.S.C. § 112, ¶ 6. Defendants further contend that all five claims are invalid as indefinite because the patents do not disclose an algorithm to accomplish the function. Plaintiffs agree claims 25 and 28 of the '424 patent are means-plus-function claims, but argue that claim 1 of the '847 patent and claims 26 and 29 of the '424 patent are not.

The Court first considers whether claim 1 of the '847 patent and claims 26 and 29 of the '424 patent are means-plus-function claims. The text of these claims specifies that the "means for mapping comprises a controller." Claim terms that use the phrase "means for" are presumptively means-plus-function terms governed by § 112. Biomedino, LLC v. Waters Techs. Corp., 490 F.3d 946, 950 (Fed. Cir. 2007). The presumption is overcome if the claim, in addition to the functional language, recites sufficient structure to perform the recited function in its entirety. Id.

The parties agree that the structure recited in claim 1 of the '847 patent and claims 26 and 29 of the '424 patent is "a controller." Plaintiffs maintain that naming a controller discloses sufficient structure to explain how to perform the mapping function described in these claims; Defendants argue that it does not.

Both sides offer an expert opinion in support of their argument. Plaintiffs provide a declaration from their expert, Dale E. Buscaino, from the proceedings before the ITC. During those proceedings, Mr. Buscaino opined:

> It is my opinion that the disclosed structure includes a controller or controller chip. . . . In my opinion, the controller or controller chip is a chip or integrated circuit that can manage, for example, flash memory card input / output, without the need for a computer or microprocessor and without any programmed algorithm. It is my opinion that a computer-less, microprocessor-less integrated circuit or chip can perform the function of "mapping power, ground or data signals. . . ." And, I do not view the specifications of the '847 and '424 patents as limiting the controller or controller chip to require a computer or microprocessor.

Buscaino Decl., Docket No. 282-17, Ex. O. at ¶ 20. Defendants counter with an opinion from their expert, Dr. Gary S. Tjaden, that in order to accomplish the mapping function, the disclosure of a controller as structure is insufficient because the mapping function requires that the controller must be a microprocessor and that the microprocessor must be programmed according to a particular algorithm.

The Court finds Plaintiffs' expert to be more persuasive. Defendants' argument may have been more relevant had the Court adopted Defendants' proposal regarding the construction of the term "to map." If the patents required a dynamic assignment of contact pins to signal lines, then a microprocessor might be necessary to accomplish the mapping function. Defendants' expert, Dr. Tjaden, opines that a microprocessor is required, but does not clearly identify the definition of the term "mapping" that he employs. Tjaden Decl. (Docket No. 300-18). It appears that he utilizes Defendants' proposed definition of "to map" which would require the controller to be capable of dynamically varying the assignments of signal lines to contact pins. It may well be that under Defendants' understanding of "to map" a microprocessor is necessary; however, the Court rejected Defendants' proposal as explained above. The Tjaden declaration does not shed much light on the necessity of a microprocessor under the less-stringent construction of "to map" as utilized in the patents and adopted by the Court. In contrast, Plaintiffs' expert Mr. Buscaino explicitly utilized the construction adopted above; he stated in his declaration that to "logically assign" signals, a controller is sufficient structure. Buscaino Decl. at ¶¶ 19-20.

Defendants' citation to Aristocrat Technologies Australia Pty Ltd. v. International Game Technology, 521 F.3d 1328 (Fed Cir. 2008), is unavailing. In that case, the Federal Circuit held that computer-implemented means-plus-function claims require an

algorithm in order to disclose sufficient structure. 521 F.3d at 1338. But there, even the patentee acknowledged that the structure required a "standard microprocessor-based gaming machine with appropriate programming" to accomplish the recited functions. Id. at 1331 (internal quotations omitted). There was no argument before that court, as there is here, that a microprocessor is not necessary to perform the recited functions. Instead, here, Plaintiffs' expert opined that the recited functions could be accomplished by "a computer-less, microprocessor-less integrated circuit or chip." The holding from Aristocrat requiring disclosure of an algorithm does not extend to a function that can be performed by an integrated circuit or chip.

Given the uncertainty surrounding Defendants' expert's definition of the mapping function and the likelihood that their expert employed a more stringent definition of the mapping function than the Court adopted above, the Court concludes that claim 1 of the '847 patent and claims 26 and 29 of the '424 patent, which specifically state that the "means for mapping comprises a controller," disclose sufficient structure to overcome the presumption that the claims are means-plus-function claims.

Claims 25 and 28 of the '424 patent vary slightly in that they do not specify structure, but rather focus on the function performed. They claim a "**means for mapping** power, ground or data signals between said interconnection pins and said one or more contact pins depending upon the identification of the type of

memory card inserted into said port." The parties agree that these claims are means-plus-function claims. For such claims, courts utilize a two-step process in claim construction. First, the court must identify the function described in the claim, and second, the court must identify the corresponding structure for that function. There is no dispute that the function is "mapping," which, as construed above, means "assigning." The parties also agree that these claims disclose a controller as the structure.

The controversy raised by the parties with regard to these claims is less about claim construction than the validity of the claims. Defendants argue that "a controller" is insufficient structure, that therefore an algorithm must be disclosed, and that the Court must find the claim to be invalid as indefinite because the patents do not disclose an algorithm. Patents are presumed valid and, thus, Defendants bear the burden to show that the claims fail as indefinite. Telcordia Technologies, Inc. v. Cisco Systems, Inc., 612 F.3d 1365, 1377 (Fed Cir. 2010). As discussed above, Plaintiffs and Defendants have both offered expert testimony on this point; however, Defendants' expert did not specify the definition of the "mapping" function he considered in arriving at his opinion that a controller is insufficient structure to accomplish the function. The Court therefore declines to determine the validity of the claims at this time. Defendants will have an opportunity to put forth any invalidity

arguments they may have, utilizing the "mapping" terms as construed by the Court.

Accordingly, the Court construes **"means for mapping"** to have a function as that recited by the claims (with "mapping" as construed above) and construes the corresponding structure as **"a controller."** Additionally, the Court rejects Defendants' argument that the "means for mapping" term is indefinite, without prejudice to Defendants' reasserting the argument with appropriate evidence at summary judgment or trial.

3. "means for [identifying/determining] the type of memory card inserted into said port"

This phrase appears in claims 25 and 28 of the '424 patent and claim 2 of the '847 patent. The '424 patent twice describes a **"means for identifying the type of memory card** inserted into said port." '424 patent at 11:6-7 and 12:6-7. The '847 patent describes an apparatus "where said controller comprises **means for determining the type of memory card** inserted into said port." '847 patent at 8:51-54.

The parties agree that these phrases are means-plus-function claims governed by 35 U.S.C. § 112, ¶ 6, and they agree that the function is identifying the type of memory card inserted into the port. The parties dispute the corresponding structure. Plaintiffs maintain that the structure is a controller. Defendants argue that more is required, and that the structure is "a controller and card detect lines for the various cards, wherein

the card detect lines for at least one type of memory card is multiplexed with data bus lines for at least one other type of card." Defendants' Brief at 20.

Title 35 provides that the "specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention." 35 U.S.C. § 112, ¶ 2. The test for whether the disclosure is sufficient is considered from the perspective of a person of skill in the art. Telcordia, 612 F.3d at 1377. "While corresponding structure need not include all things necessary to enable the claimed invention to work, it must include all structure that actually performs the recited function." Default Proof Credit Card Sys. v. Home Depot U.S.A., Inc., 412 F.3d 1291, 1298 (Fed. Cir. 2005).

In their briefs and presentations at the claim construction hearing, the parties dispute what structure is necessary to perform the stated function. First, Defendants argue that card detect lines are required to perform the identifying function, while Plaintiffs contend that they are not. The patents state that detection of card type is determined by which of the card detect lines pulls to low voltage, and it is through this signal on the card detect lines that the controller knows which type of card is inserted into the device. '424 patent at 6:44-46. The card detect lines are a necessary part of the structure that actually performs the identification function. Thus, disclosure

of the controller and card detect lines as the structure satisfies the requirement that the disclosure "include all structure that actually performs the recited function." Default Proof Credit Card Sys., 412 F.3d at 1298.

Next, Defendants argue that the card detect lines must be multiplexed with signal lines. They point out that the specification's discussion of the SmartMedia and xD cards includes data bus lines that are "multiplexed to serve as card-detect lines." Defendants do not effectively reply to Plaintiffs' response that in some embodiments no multiplexing is required. Plaintiffs show that if the invention is implemented in a device that reads only the Mini SD, RS MMC and Memory Stick Duo types of media memory cards, none of the card detect lines must be multiplexed. This is because, as illustrated in Figure 5, each of these types of memory cards utilizes different card detect lines. In this embodiment, each card has its own non-multiplexed card detect line that is not shared with any other card type. Accordingly, the Court concludes that the data lines may be multiplexed, but it is not necessary that they be multiplexed in all embodiments of the patent.

At the claim construction hearing, Plaintiffs offered MCMD command signals as another component for the structure of this claim. Defendants countered that the MCMD command signals, while mentioned in the patent, are not clearly linked to the function of identifying the type of card, and therefore MCMD command signals

cannot be cited as structure for the means-plus-function claim. Biomedino, 490 F.3d at 950. Plaintiffs referred the Court to paragraph 40 of the Buscaino declaration, which provides:

> There are a number of structures disclosed in the '424 and '847 patent specifications that are involved in the card identification process. . . . Further, Figures 4 and 5 of the '424 and '847 patents disclose MCMD, which refers to a pin and corresponding control signal line used by the controller for sending commands and by SD and MMC cards for issuing responses back to the controller. In addition, the '424 and '847 patents disclose "control signals" in column 6, lines 51-53 and column 5, lines 52-54, respectively. Control signals include signals issued by the controller to a card that include initialization commands. Initialization commands disclosed in the SD specification, such as CMD0, ACMD41, CMD2, and CMD3, are conveyed along the MCMD control signal line and are used by the controller to distinguish between SD and MMC cards. Responses from SD and MMC cards are also conveyed along the MCMD controls signal line.

Buscaino Decl. at ¶ 40. The Court agrees with Defendants that MCMD was not clearly linked to the function of identifying the card type, and takes each argument quoted above in turn. First, it is true that "MCMD" appears in Figures 4 and 5 of the patents, but it appears only as a mapping of a contact pin to a signal line and without any explanation regarding function. The citation to the disclosure of control signals in the '424 and '847 patents is similarly unhelpful to Plaintiffs; the cited passage refers to control signals found in the pin mappings for smart media cards, not MMC/SD cards, and does not refer to MCMD. And finally, the SD specification, an extrinsic document, is of little assistance because the inquiry is limited to the written description in the

patents themselves. For these reasons, the Court does not find that MCMD command signals are part of the recited structure of this claim.

Accordingly, the Court construes the function as that recited by the claims and construes the corresponding structure as **"a controller and card detect lines."**

4. "Contact pins integrated within [the] molded plastic"

This phrase appears in claims 1 and 9 of the '443 patent. Claim 1 describes contact pins, ". . . wherein the at least one set of **contact pins are integrated within the molded plastic** of the first planar element or the second planar element." '443 patent at 8:49-53. The term appears in claim 9 in language that is slightly, though not significantly, different. '443 patent at 9:27-10:2. Plaintiffs contend that no construction is necessary because the phrase is readily comprehensible by a finder of fact. Defendants argue that intrinsic evidence supports giving the term a limited construction, that the pins are "embedded" in the plastic, and so-called floating pins are excluded. Defendants' Brief at 25.

Defendants first argue that the specification teaches away from floating pins. The specification discusses the floating pins of the prior art and points out several disadvantages, including: floating pins are subject to damage and deterioration, their resiliency is reduced through use which may eventually make it more difficult for cards to make connection, and improper

insertion of memory cards may result in damage to the pins. '443 patent at 2:66-3:10. The specification further states that the invention overcomes these problems because the pins are "formed from injected contacts with protruding pins." '443 patent at 5:26-27. Defendants maintain that these statements show that floating pins are not included in the specification. The Court disagrees with this argument for two related reasons. First, Defendants overlook the words preceding the above-quoted phrase; the complete phrase actually remarks, "For an embodiment in which the planar elements are formed from molded plastic, contact pin sets may be formed from injected contacts with protruding pins." '443 patent at 5:24-27 (figure numerals omitted; emphasis added). Thus the specification leaves open the possibility that the pins may be "formed from injected contacts" in an embodiment, but also that they may not in other embodiments. Second, the '443 patent explains the advantages of "one embodiment" of the invention as having pins that retain resiliency more than floating pins. '443 patent at 4:23-26. This may be read to imply that other embodiments of the patent include floating pins. That a patent criticizes existing technology does not necessarily preclude incorporation of that technology. Thorner v. Sony Computer Entm't Am. LLC, 669 F.3d 1362, 1366 (Fed. Cir. 2012) ("Mere criticism of a particular embodiment encompassed in the plain meaning of a claim term is not sufficient to rise to the level of clear

disavowal."). The Court thus concludes that the claims do not necessarily disallow the use of floating pins in every embodiment.

Defendants also argue that the applicant disclaimed floating pins during the prosecution of the '443 patent. It is true, as noted above, that "the prosecution history (or file wrapper) limits the interpretation of claims so as to exclude any interpretation that may have been disclaimed or disavowed during prosecution in order to obtain claim allowance." Standard Oil Co. v. Am. Cyanamid Co., 774 F.2d 448, 452 (Fed. Cir. 1985). Patentees are not entitled to the broad, plain and ordinary meaning of a claim term if they have made a clear disavowal of claim scope. Thorner, 669 F.3d at 1367. The court may only find disavowal if there is "a clear and explicit statement by the patentee." Id. Defendants point to the prosecution history, and contend that the applicant explicitly disclaimed floating pins in response to the prior art rejection citing Hung-Ju. However, a close look at the relevant discussion reveals that the applicant pointed out only that the invention has contacts pins that are "integrated within the molded plastic" in contrast to Hung-Ju which teaches pins that are "of a floating structure sitting on an exterior or interior surface." Office Action Summary at TPL002556-57. The parties have not provided the Court with a comprehensive definition of what a floating pin is, and the discussion during the claim construction hearing yielded examples but nothing definitive. It may be that pins "of a floating

structure sitting on an exterior or interior surface" are only one variation of floating pins, and in excluding all floating pins the Court would read the discussion of Hung-Ju too broadly. Based on the record before the Court, the Court is unwilling to find that the applicant's statement during prosecution constituted a clear and explicit disavowal of floating pins of every possible nature.

The Court will not define the claim term with reference to "floating contact pins." Nonetheless, the Court disagrees with Plaintiffs' argument that no construction is necessary of the claim term "contact pins integrated within [the] molded plastic." The Court will, therefore, further define the term. Defendants argue that the term should be construed to mean "embedded within molded plastic." Defendants' Brief at 24. At the ITC, the ALJ agreed with Defendants, noting that part of the specification describes the advantages of the pins being "embedded" in the molded plastic. ALJ Claim Construction at 23 (quoting '443 patent at 7:67-8:3). The Court agrees with this construction. The purpose behind "integrating" the pins into the plastic is to build a physical structure that is sturdier than if the pins were merely resting upon the plastic. Construction of the term to require that the contact pins be embedded--that is, firmly fixed--in the molded plastic reflects that stated purpose. Accordingly, the Court construes **"contact pins integrated within the molded plastic"** to mean **"contact pins embedded within the molded plastic."**

5. "interconnection means"

This phrase appears in claims 25 and 28 of the '424 patent, and claim 1 of the '847 patent. Claim 25 of the '424 patent describes "an **interconnection means** having a plurality of interconnection pins". '424 patent at 10:66-67. Claim 28 of the '424 patent describes "a set of signal lines connected to an **interconnection means.**" '424 patent at 12:5. Finally, claim 1 of the '847 patent describes:

> a set of signal lines connected to a controller, the number of signal lines being fewer than the number of contact pins; the signal lines located between the controller and an **interconnection means;**
> said **interconnection means** being located between the signal lines and the plurality of sets of contact connecting said signal lines to said one or more contact pins[.]

'847 patent at 8:39-46. Plaintiffs argue that the term "interconnection means" should be construed as "conductive elements that electrically connect." Plaintiffs' Brief at 20. Defendants argue that the term means "conductive structures separate and distinct from contact pins." Defendants' Brief at 28.

The Court agrees with Defendants. This construction is supported by the specification. The '424 patent describes "[i]nterconnects that electrically connect the standard connector to contact pins." '424 patent at 5:42-43 (figure numerals omitted). The interconnects (or interconnection means) are

separate structures placed between the connector and the contact pins. Additionally, claims 25 and 28 both require a "means for mapping" between the interconnection means and the contact pins. '424 patent at 11:8-10 and 12:8-10. In order to map signals between interconnection means and contact pins, those two elements must be separate and distinct structures. This understanding is also supported by the '847 patent, where claim 1 requires an interconnection means that "connect[s] said signal lines to one or more contact pins." Plaintiffs contend that there is no intrinsic evidence requiring that the interconnection means must be separate from the contact pins. However, Plaintiffs do not address or rebut Defendants' arguments. The Court concludes that if there is a means for mapping signals between interconnection means and contact pins, these two elements must be separate and distinct because if they are the same structures then the claimed mapping cannot occur. Accordingly, the Court construes **"interconnection means"** to mean **"conductive structures separate and distinct from contact pins."**

6. "memory media card"

This phrase appears in claims 1 and 9 of the '443 patent, in claims 25 and 28 of the '424 patent, and in claim 1 of the '847 patent. Claim 1 of the '443 patent describes a physical structure creating a "port capable of receiving a **memory media card**" and a controller chip to map contact pins to signal lines, "based on an identified type of a **memory media card.**" '443 patent at 8:42 and

8:54-56. The term also appears in claims 25 and 28 of the '424 patent, and in claim 1 of the '847 patent in language that is slightly, though not significantly, different. '424 patent at 11:4 and 12:4; '847 patent at 8:37.

Plaintiffs contend that the term is readily comprehensible to a finder of fact and no further construction is necessary. As discussed at the claim construction hearing, the Court disagrees with Plaintiffs, and finds that some definition of the term is necessary to assist in the adjudication of the parties' dispute. At the hearing, when asked to offer a construction of the term, Plaintiffs emphasized the requirement that the memory media card be capable of storing large digital files, such as video or photographs. Defendants proposed construing the term as "a removable module capable of storing electronic data." Defendants' Brief at 29.

The Court adopts Defendants' proposal. The word "media" could be read either as describing a structure upon which data is written or as describing the content that is written, for example video or pictures. The Court finds that the word is used to describe the former. First, the patents do not limit the term to require that the card be capable of storing video or photographs. The actual content of the card is not discussed in the patents; there is no mention of video, photographs or pictures. Second, while the patents provide examples of cards that are capable of storing media content, the specification specifically states, "In

general, embodiments of the invention are applicable to any generic flash media." '443 patent at 8:23-24; '424 patent at 8:35-36; '847 patent at 8:24-25. In their reply brief, Plaintiffs cite the above-quoted passage, but they do not explain why the term "media" refers to content, or why the card must be capable of storing large digital files, as they contend.

Finally, in lieu of Defendants' suggestion to utilize the word "module," a technical term that is not defined in the record, the Court will use the more familiar word "device," as discussed at the claim construction hearing.

Accordingly, the Court concludes that the term **"memory media card"** means **"a removable device capable of storing electronic data."**

7. "type of memory [media] card"

This phrase appears in claims 1 and 9 of the '443 patent, in claims 25 and 28 of the '424 patent, and in claim 1 of the '847 patent. The '443 patent describes that the controller chip maps contact pins to signal lines, "based on an identified **type of a memory media card.**" '443 patent at 8:54-56. The term appears in claim 9 of the '443 patent, claims 25 and 28 of the '424 patent, and in claim 1 of the '847 patent in language that is slightly, though not significantly, different. '443 patent at 10:6; '424 patent at 11:6 and 12:10-11; '847 patent at 8:48.

Plaintiffs contend that this term requires no construction. Defendants propose the following: "different 'types of memory

media cards' have incompatible electrical and physical interfaces. For purposes of mapping/identifying in these claims, MMC/SD is a single type of memory media card." Defendants' Brief at 31.

The Court rejects Defendants' proposal. The intrinsic evidence does not support a conclusion that the applicant clearly limited the term to mean that MMC and SD cards are a single type of memory media card. Instead, as Plaintiffs show, the applicant differentiated MMC and SD cards in Figure 1 and in the specification. Plaintiffs' Brief at 21-22 (quoting '424 patent at 2:2-4) ("MultiMediaCard 141 or Secure Digital card 153 . . . have . . . different pin-out."). The applicant also differentiated MMC and SD cards during prosecution, explaining that Figures 4 and 5 show the sets of contact pins utilized depending upon the type of card inserted, and specifying that "MMC and SD are themselves different card types." '847 File History, Ex. I. In light of the instances in the record where MMC and SD cards are specifically referred to as different "types" of cards, the Court rejects the second sentence of Defendants' proposal as unsupported by the record.

The Court also rejects the first half of Defendants' proposal, that different types of cards must have incompatible electrical and physical interfaces, as unsupported by the record. The concept of incompatibility is not well-defined in the materials before the Court; indeed, Defendants do not use, much less define, the term in their brief urging the Court to adopt a

definition relying on that term. Moreover, the word "incompatible" is used only once in each patent, each time discussing compatibility of adapter cards with laptop devices, another context entirely. '443 patent at 3:14-16; '424 patent at 3:14-16; '847 patent at 3:2-3. Thus the Court declines to construe the claim term using the word "compatibility."

In their briefs, Plaintiffs contend that no construction is necessary. The Court disagrees and finds that definition of the term will assist in further adjudication of this case. At the claim construction hearing Plaintiffs proposed a definition that different types of cards have different numbers of contact pins or use those contact pins differently. When asked, Defendants did not articulate a reason why the Court should not adopt Plaintiffs' proposal. The Court finds that this definition is supported by the intrinsic evidence, given the patents' emphasis on assigning contact pins to signal lines upon detecting the type of card; it makes sense that if the card's contact pins are different in number or differently used, this would constitute a different type of card, affecting how the controller maps the signals. Accordingly, the Court concludes that the term "type of memory [media] card" means a "subset of memory media cards containing different numbers of contact pins or using contact pins differently."

CONCLUSION

For the reasons explained above, the Court construes the disputed claims as follows:

Term	Court's Construction
1. "to map"	"to assign"
2. "means for mapping"	Function: "mapping" Structure: "a controller"
3. "means for [identifying/determining] the type of memory card inserted into said port"	Function: "[identifying/determining] the type of memory card inserted into said port" Structure: "a controller and card detect lines"
4. "Contact pins integrated within molded plastic"	"contact pins embedded within molded plastic"
5. "Interconnection means"	"conductive structures separate and distinct from contact pins"
6. "memory media card"	"a removable device capable of storing electronic data"
7. "type of memory [media] card"	"subset of memory media cards containing different numbers of contact pins or using contact pins differently"

IT IS SO ORDERED.

Dated: September 18, 2015

CLAUDIA WILKEN
United States District Judge